

No. 641,563.

Patented Jan. 16, 1900.

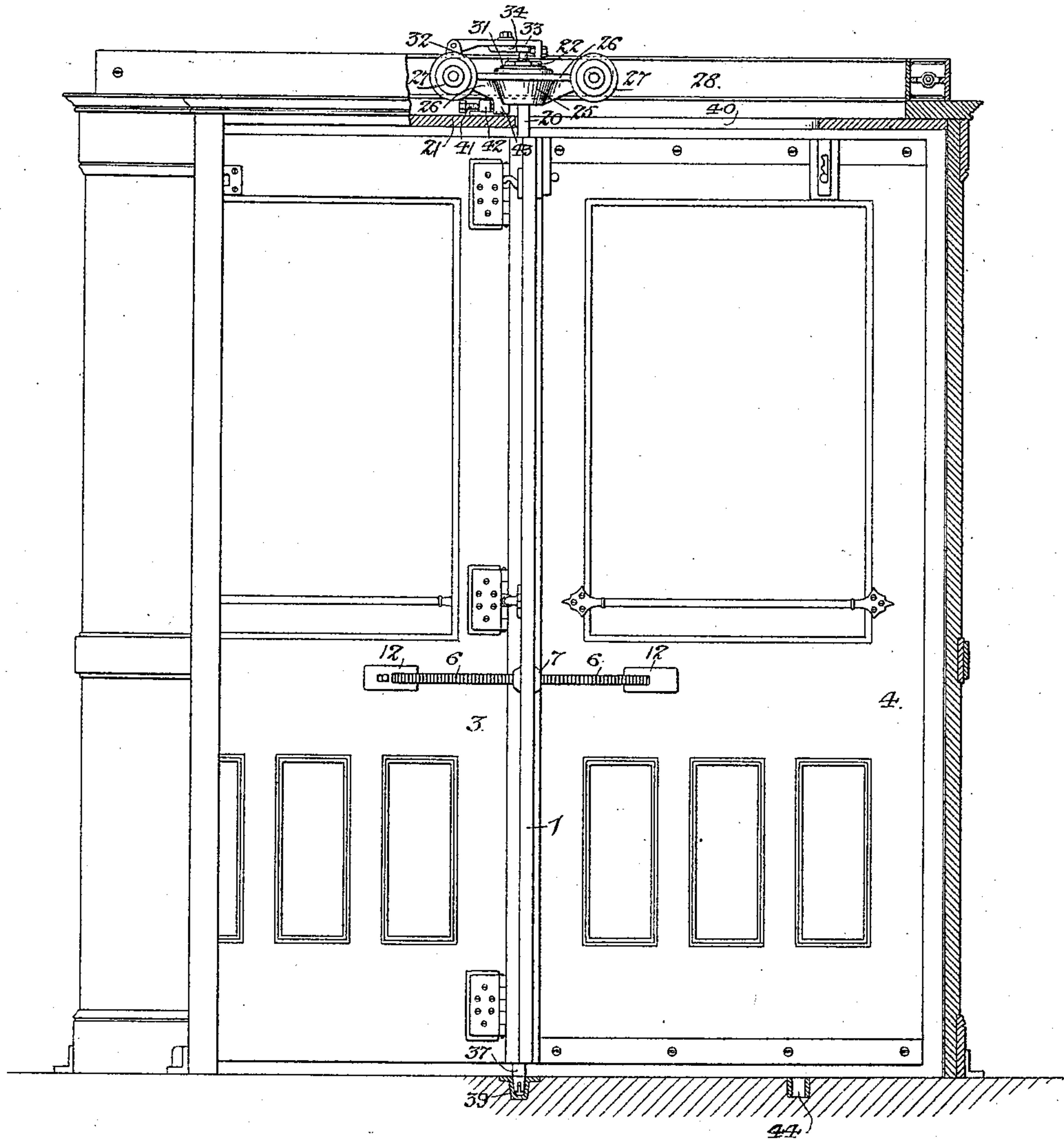
T. VAN KANNEL.
REVOLVING DOOR STRUCTURE.

(Application filed Sept. 18, 1899.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.



Witnesses:-

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Inventor:-

Theophilus Van Kannel.

by his Attorneys:-

Howson & Howson

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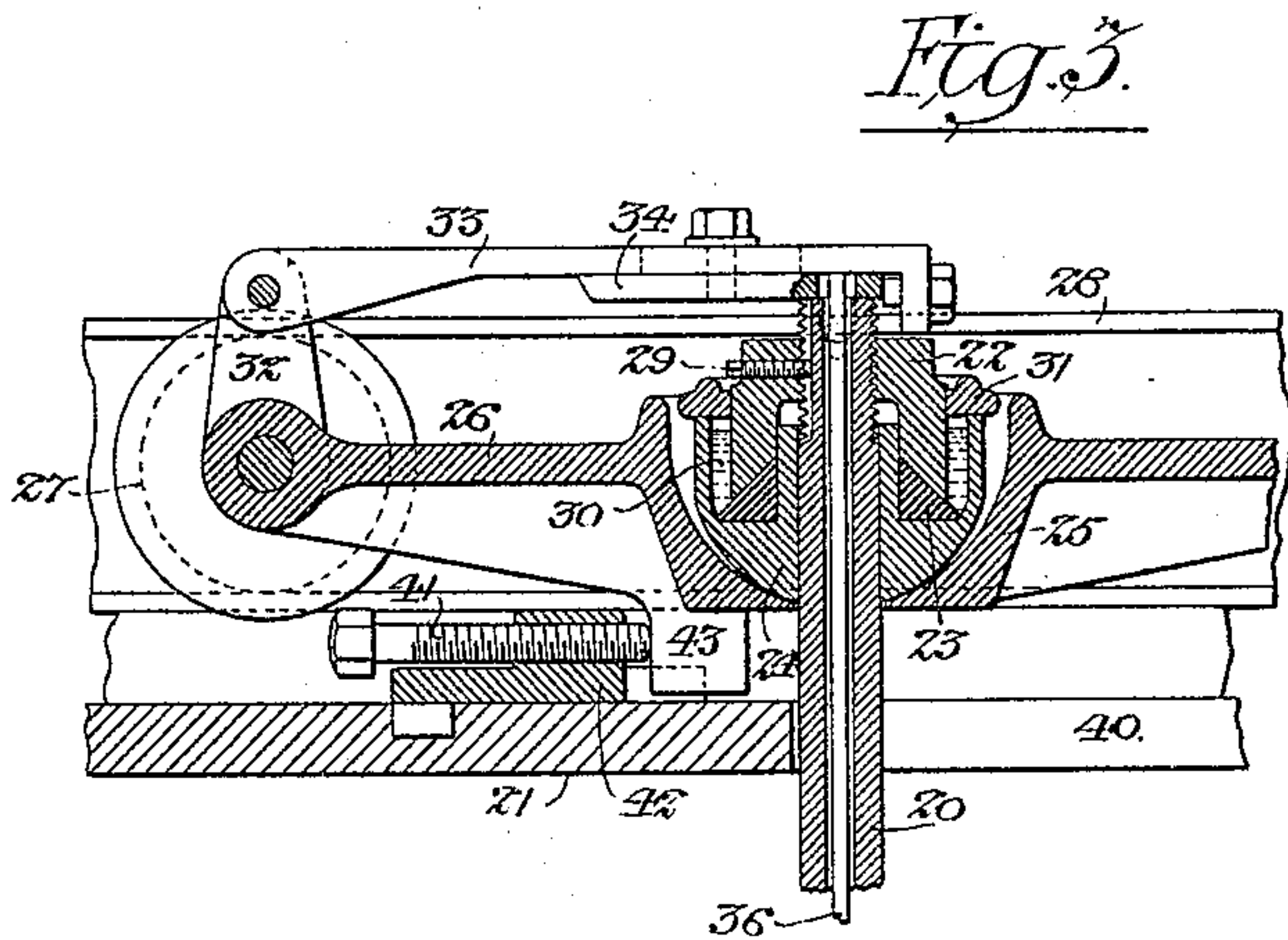
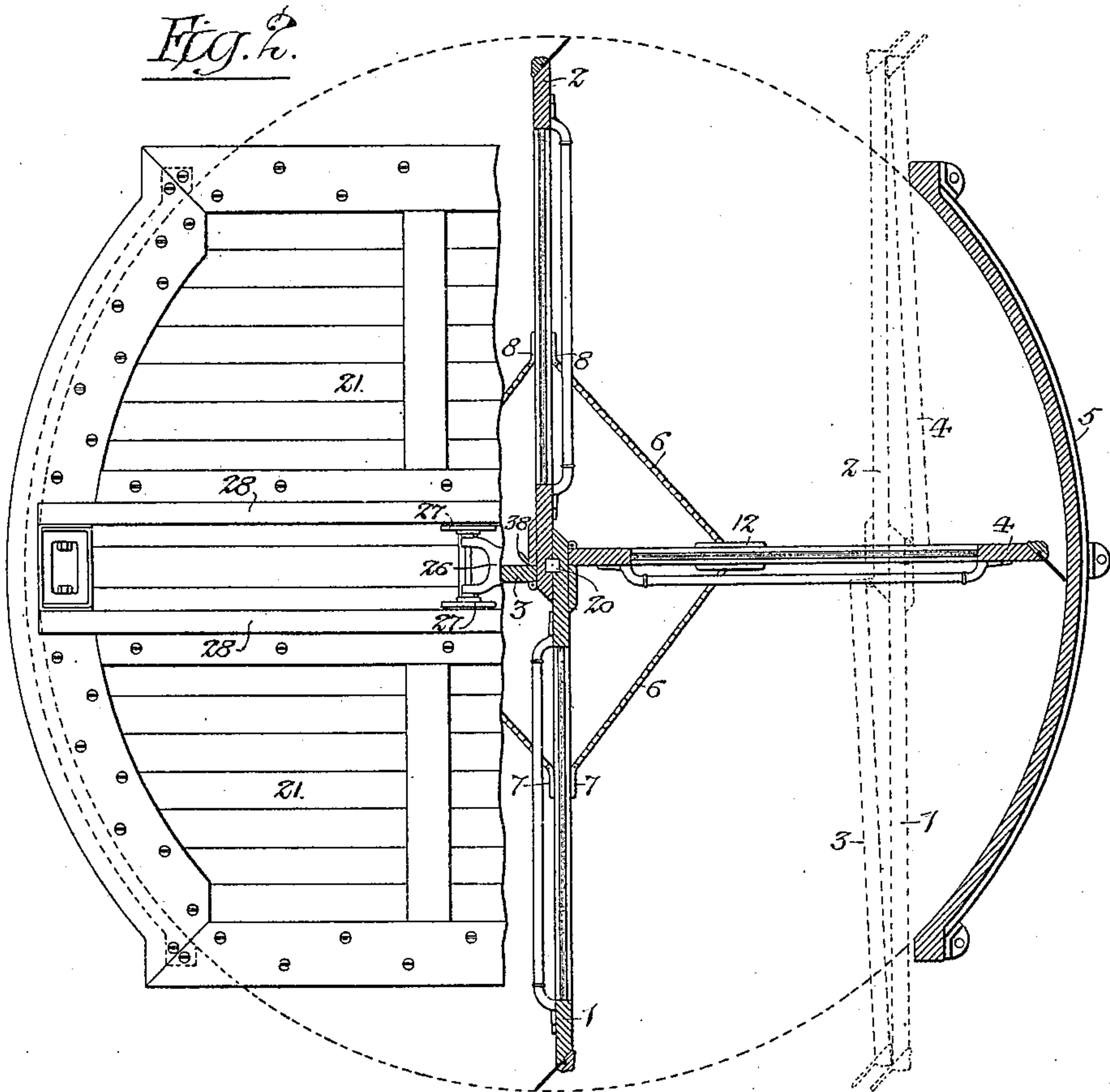
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4 Sheets—Sheet 2.



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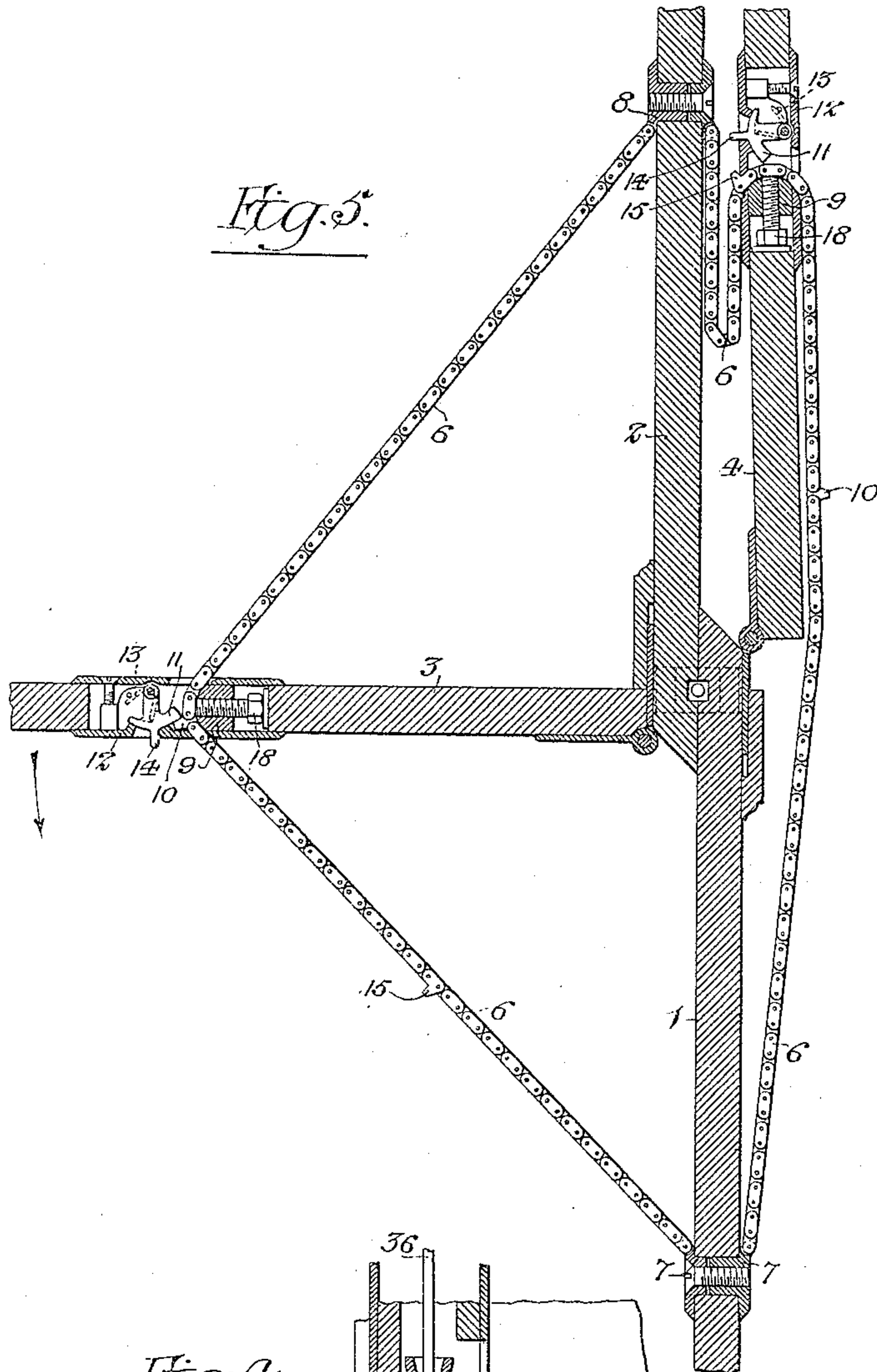
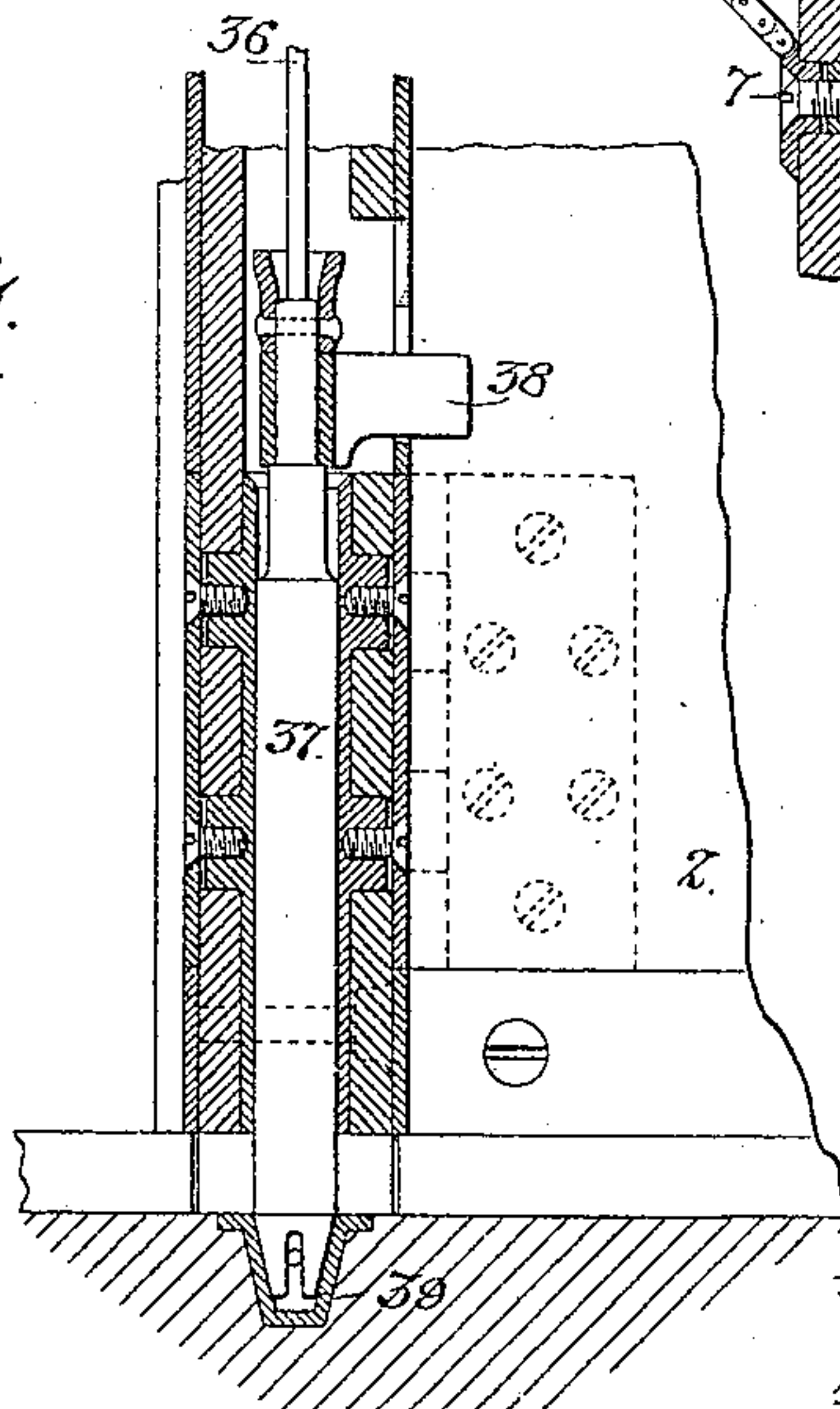


Fig. 4.



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4 Sheets—Sheet 4

Fig. 6.

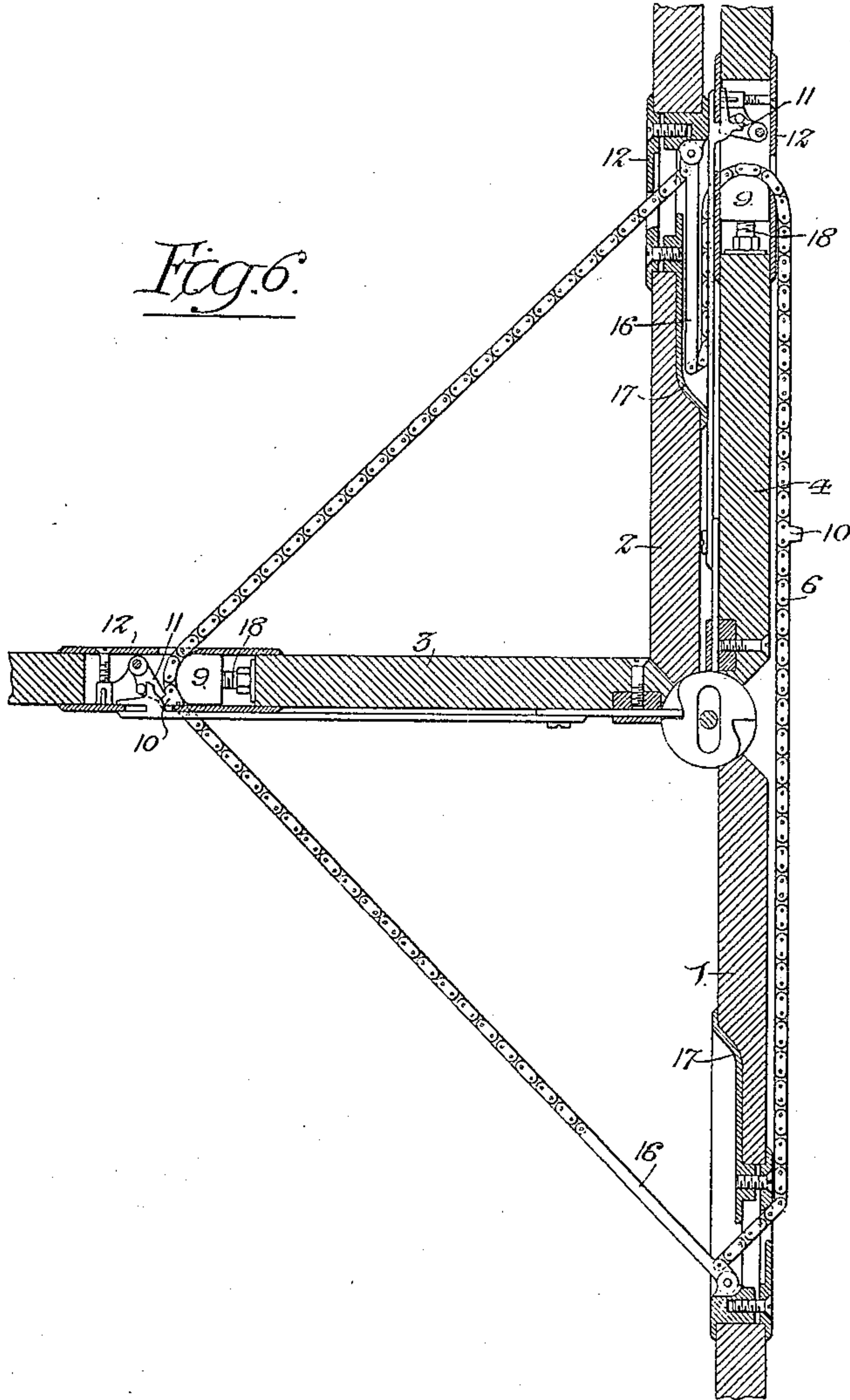
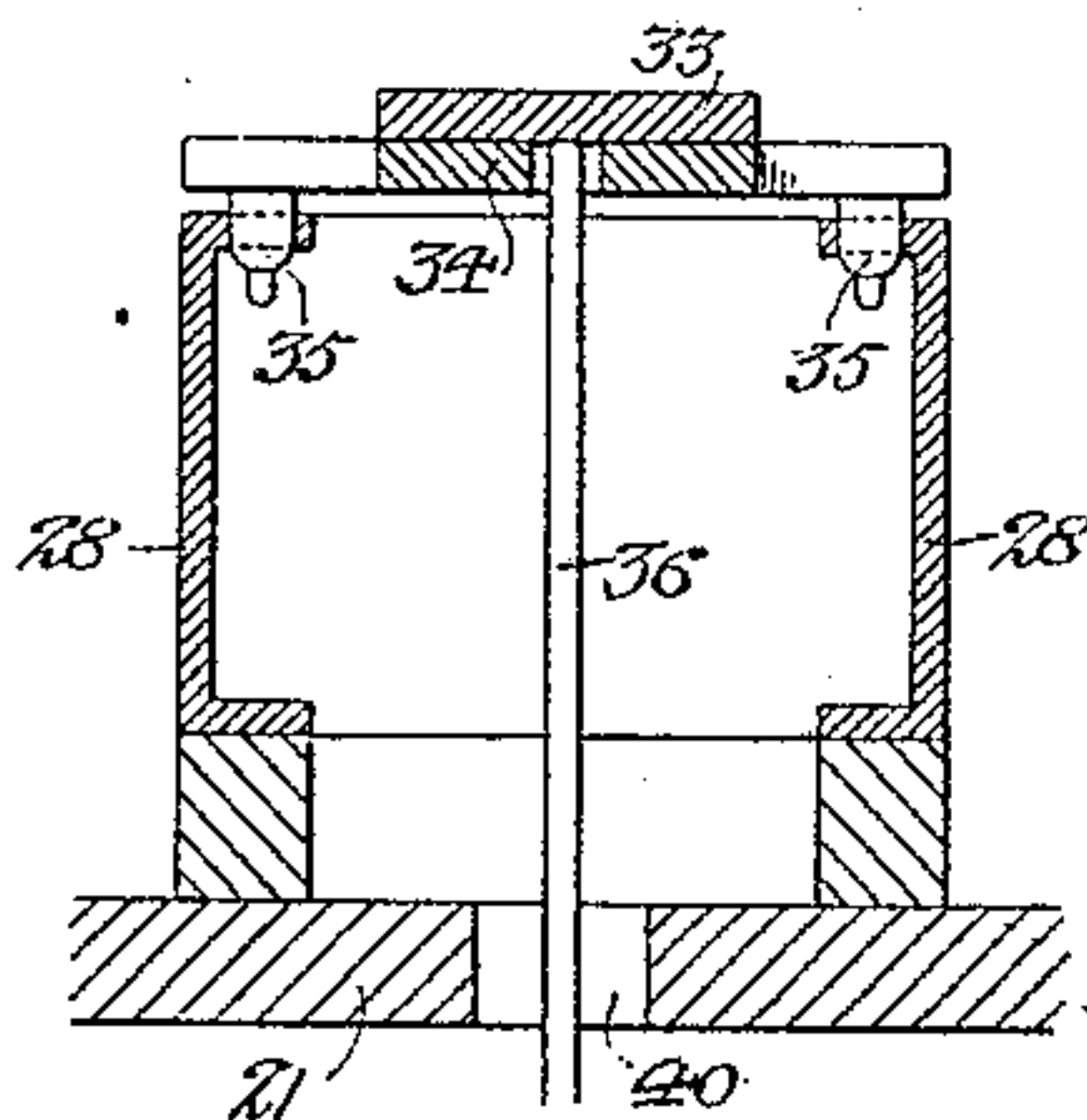


Fig. 7.



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UNITED STATES PATENT OFFICE.

THEOPHILUS VAN KANNEL, OF NEW YORK, N. Y.

REVOLVING-DOOR STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 641,563, dated January 16, 1900.

Application filed September 18, 1899. Serial No. 730,884. (No model.)

To all whom it may concern:

Be it known that I, THEOPHILUS VAN KANNEL, a citizen of the United States, and a resident of New York city, New York, have invented certain Improvements in Revolving-Door Structures, of which the following is a specification.

My invention consists of certain improvements in revolving storm-doors of the character shown in my previous patents, Nos. 387,571, 588,620, and 588,888, the object of my present improvements being to provide simple and efficient means for retaining the wings of the door in their proper positions in respect to each other when the door is in use, but permitting the wings to be folded and the wing structure to be moved over to one side of the casing when direct ingress or egress is desired. This object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a view, partly in side elevation and partly in section, of a storm-door structure embodying my present improvements. Fig. 2 is a view of the same partly in top or plan view and partly in sectional plan. Fig. 3 is an enlarged sectional view of the upper pivot and carrier structure for the door. Fig. 4 is a sectional view of the lower pivot structure. Fig. 5 is a sectional plan view of the door, showing one of the movable wings extended and the other closed. Fig. 6 is a similar view illustrating a special feature of the invention, and Fig. 7 is a sectional view showing the mode of locking the door.

Referring first to Figs. 1 and 2, it will be observed that the rotating structure of the door has four wings 1, 2, 3, and 4, the wings 1 and 2 being fixed and the wings 3 and 4 being hinged, so that they can be folded over against the wings 1 and 2, respectively, and the whole structure can then be moved over to one side of the casing 5, as shown by dotted lines in Fig. 2.

In order to effectually brace the wings 3 and 4 when they are extended, and yet permit them to be readily folded, I use chains 6, one of said chains running from an attaching-stud 7 on the wing 1 to an attaching-stud 8 on the wing 2, and passing in its course over a block 9, adjustable longitudinally in a slot

in the wing 3, while the other chain 6 passes from one attaching-stud 7 to the other stud 8 over a similarly-adjustable block 9, adapted to a slot in the wing 4, as shown in Fig. 5. 55

When the wing is extended, a lug 10 on one of the links of the chain 6 is, as shown on the left-hand side of Fig. 5, engaged by a trigger 11, hung to a suitable bearing in the casing 12, which closes the slot in the wing 60 of the door, said trigger preventing any movement of the wing in the direction of the arrow necessary to close it, and the trigger being held in engagement with said locking-lug 10 by the action of a spring 13. 65

Extending from the trigger through a slot in the casing 12, however, is a finger 14, whereby the trigger may be retracted so as to release the locking-lug 10 when it is desired to fold the hinged wing against the fixed wing, as shown at the upper right-hand side of Fig. 5, the slack of the chain being taken up and caused to fold in between the fixed and swinging wings by reason of the engagement of one plate of the casing 12 with a lug 15 on 75 one of the links of the chain. Instead of using this latter construction, however, I may use a swinging arm 16, Fig. 6, hung to the fixed wing of the door and adapted to close into a recess 17 therein when the swinging 80 wing is folded, as shown at the upper right-hand side of Fig. 6, the arm being drawn outward, however, so as to form a practical continuation of the chain, as shown at the bottom of Fig. 6, when the swinging wing of the 85 door is extended.

The adjustment of the block 9 serves to insure the maintenance of the chain 6 in a perfectly tight condition when the wing is extended so that said chain acts as a brace for 90 the wing. Adjustment of the block is effected by means of a screw 18, adapted to a threaded opening in the block and having a head bearing against a plate or washer at the end of the recess in the swinging wing of the door. 95

The rotating portion of the door is hung to a central post 20, Fig. 3, which extends through the ceiling 21 of the fixed or casing structure and is threaded at the upper end for the reception of a hanger-block 22, the lower end 100 of which has a conical recess for adaptation to a conical block 23 of Babbitt metal or

other antifriction material which is supported upon the bottom of a substantially hemispherical cup 24, mounted so as to be free to swing in all directions in a socket 25, forming
 5 part of a truck 26, which has wheels 27, running on rails formed by transverse girders 28, which are mounted above the ceiling structure of the door.

The hanger-block 22 is prevented from turning independently of the central post 20 of the
 10 door by means of a set-screw 29, which enters a groove in the upper threaded portion of said post, and the block 24 contains a well 30, closed at the top by a ring 31, and containing a supply of oil which serves to lubricate the upper pivotal bearing of the post, the
 15 quantity of oil contained in this well being sufficient to lubricate the pivot for a long period of time, so that renewals are infrequent.

Hung to a bracket 32 on the truck 26 is an arm 33, on which is longitudinally adjustable a slide 34, carrying lugs or studs 35, Fig. 7, which when the post 20 is in its proper central position engage with openings in the upper
 25 flanges of the girders 28, and thus lock the truck in such central position. The post 20 is, however, hollow, and passing down through the same is a rod 36, which rests at its lower end upon the vertically-movable lower
 30 pivot 37 of the door. (See Fig. 4.) Hence when the latter is lifted by means of its lug 38, so as to free it from the central socket 39, the slide 34 and its lugs 35 will likewise be lifted, owing to the fact that the upper end of
 35 the rod 36 bears upon the arm 33, as shown in Fig. 7, and the door structure will then be free to be moved over to the side of the casing, as shown by dotted lines in Fig. 2, it being understood that the swinging wings 3
 40 and 4 have first been folded against the fixed wings 1 and 2. In order to permit this side movement, the ceiling 21 of the door-casing has a slot 40 for the passage to and fro of the
 45 central post 20 of the door. A set-screw 41, carried by a block 42 on the ceiling 21, serves by contact with a lug 43 on the under side of the truck 26 to limit the inward movement of the latter when the post 20 of the door
 50 reaches its proper central position, the adjustment of the set-screw 41 providing for the necessary accuracy in this respect.

A socket 44 in the floor or floor-plate receives the lower pivot 37 of the door when the latter has been moved over to one side of the
 55 casing, and thus serves to lock the door in such position.

Having thus described my invention, I claim and desire to secure by Letters Patent—

60 1. The combination of fixed wings of a revolving door, an intermediate swinging wing, a chain connected at its opposite ends to the fixed wings and passing over a bearing on the intermediate swinging wing and means for
 65 locking the chain to said swinging wing when

the latter is extended, substantially as specified.

2. The combination of fixed wings of a revolving-door structure, an intermediate swinging wing, a chain secured at its opposite
 70 ends to the fixed wings, and passing around a bearing on the intermediate swinging wing, said bearing being adjustable longitudinally to maintain the chain under tension and means for locking the chain to said swinging
 75 wing when the latter is extended, substantially as specified.

3. The combination of fixed wings of a rotating-door structure, an intermediate swinging wing, a chain connected to said fixed wings
 80 and passing around a bearing on the swinging wing, and a trigger on said swinging wing for engaging with a locking-lug on the chain when the swinging wing is projected, substantially
 85 as specified.

4. The combination of fixed wings of a rotating-door structure, an intermediate swinging wing, a chain connected at its ends to the
 90 fixed wings and passing around a bearing on the intermediate wing, and means for locking the chain to said swinging wing when the latter is extended and means for taking up the slack of said chain as the swinging wing is folded against a fixed wing, substantially as
 95 specified.

5. The combination of the fixed wings of a rotating-door structure, an intermediate swinging wing, a chain connected at its opposite
 100 ends to the fixed wings and passing around a bearing on said intermediate wing, and means for locking the chain to said swinging wing when the latter is extended, and a swinging arm serving as a means of connecting one end of the chain to a fixed wing of the door,
 105 and when folded in against said fixed wing taking up the slack of the chain, substantially as specified.

6. The combination of the revoluble structure of a rotating door, with a central post, a
 110 hanger-block secured to the upper end of said post, and having a conical recess in its lower end, and a conical bearing-block upon which said hanger-block rests, substantially as specified.

7. The combination of the revoluble structure of a rotating door, with a central post
 115 carrying said revoluble structure, a hanger-block secured to the upper end of said post, a bearing-block upon which said hanger-block rests, and a support for said bearing-block
 120 containing an oil-receiving well and having a ball-and-socket bearing upon its carrier, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of
 125 two subscribing witnesses.

THEOPHILUS VAN KANNEL.

Witnesses:

JOHN H. DAY,

JAMES J. ETCHINGHAM.